

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A method of preparing titanium aquo-oxo chloride, characterized in that it consists in comprising hydrolyzing TiOCl_2 either in an atmosphere with a whose moisture content is maintained between 50 and 60%[,.] or by an alkali metal carbonate A_2CO_3 .
2. (Currently Amended) The method as claimed in claim 1, characterized in that wherein the TiOCl_2 is in the form of an aqueous $\text{TiOCl}_2\cdot\text{yHCl}$ solution.
3. (Currently Amended) The method as claimed in claim 2, characterized in that wherein the HCl concentration of the aqueous $\text{TiOCl}_2\cdot\text{yHCl}$ solution has an HCl concentration of is about 2M.
4. (Currently Amended) The method as claimed in claim 2, characterized in that wherein the $\text{TiOCl}_2\cdot\text{yHCl}$ concentration is between 4M and 5.5M.
5. (Currently Amended) The method as claimed in claim 2, characterized in that wherein the $\text{TiOCl}_2\cdot\text{yHCl}$ solution is placed at room temperature above an $\text{H}_2\text{SO}_4/\text{H}_2\text{O}$ mixture in respective amounts such that the relative humidity is around 50 to 60% and left in contact therewith for about five weeks.
6. (Currently Amended) The method as claimed in claim 1, characterized in that wherein a $\text{TiOCl}_2\cdot\text{yHCl}$ solution is brought into contact at room temperature with an alkali metal carbonate A_2CO_3 in respective amounts such that the Ti/A ratio is 4 ± 0.5 and left in contact therewith for 48 to 72 hours.
7. (Currently Amended) The method as claimed in claim 6, characterized in that wherein $\text{Ti}/\text{A} = 4 \pm 0.1$.

8. (Currently Amended) A titanium aquo-oxo chloride in the form of crystals having the following composition by weight: 26.91% Ti; 21.36% Cl; and 4.41% H, which corresponds to the formula $[Ti_8O_{12}(H_2O)_{24}]Cl_8 \cdot HCl \cdot 7H_2O$, characterized in that wherein it has a monoclinic structure with the following monoclinic cell parameters: $a = 20.3152(11) \text{ \AA}$, $b = 11.718(7) \text{ \AA}$, $c = 24.2606(16) \text{ \AA}$, $\beta = 111.136(7)^\circ$, and the Cc symmetry group.

9. (Currently Amended) The titanium aquo-oxo chloride in the form of crystals as claimed in claim 8, characterized in that wherein it is formed from monodisperse particles in a polar solvent.

10. (Currently Amended) The titanium aquo-oxo chloride as claimed in claim 9, characterized in that wherein said particles have a hydrodynamic diameter centered around 2.2 nm.

11. (Currently Amended) The titanium aquo-oxo chloride as claimed in claim 8, characterized in that wherein it is in the form of a thin film on a substrate.

12. (Currently Amended) The titanium aquo-oxo chloride as claimed in claim 11, characterized in that wherein the substrate is made of glass.

13. (Currently Amended) A semiconductor element characterized in that wherein it is formed by a titanium aquo-oxo chloride as claimed in either of claims claim 11 and 12.

14. (Currently Amended) A method of purifying air by photocatalysis, characterized in that wherein the catalyst is a titanium aquo-oxo chloride as claimed in either of claims claim 11 and 12.

15. (Currently Amended) A method of purifying aqueous effluents by photocatalysis, characterized in that wherein the catalyst is a titanium aquo-oxo chloride as claimed in either of claims claim 11 and 12.

16. (New) A semiconductor element wherein it is formed by a titanium aquo-oxo chloride as claimed in claim 12.

17. (New) A method of purifying air by photocatalysis, wherein the catalyst is a titanium aquo-oxo chloride as claimed in claim 12.

18. (New) A method of purifying aqueous effluents by photocatalysis, wherein the catalyst is a titanium aquo-oxo chloride as claimed in claim 12.